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Health seeking behavior and barriers to accessing the public health care system in Krong Kep, Cambodia

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1 Introduction

1.1 Cambodia and the health of its citizens

A violent and politically unstable history has left Cambodia very low in literacy rates, healthcare facilities, and resources, while leaving it with high rates of poverty, famine, and child mortality rates. Although there is currently some progress and aid in Cambodia towards alleviating these problems, the poor health of Cambodians greatly limits the country's ability to prosper. 85% of Cambodia's citizens live in remote rural areas[1], and 70% live without access to a source of healthy drinking water. Indeed, Cambodia has perhaps the lowest health indicators of Southeast Asia: for example, the ministry of health estimates that life expectancy is about 58.3 years for women and 54.5 years for men, and that child mortality is about 190 per 1000[2]. High rates of preventable diseases, such as HIV, tuberculosis, and malaria, continue to affect to affect an unacceptably high percentage of the population, and most Cambodians cannot afford the limited services that are available for these conditions -- with an annual GDP of 320$[3] the country is one of the poorest in Southeast Asia.

1.2 Cambodia's healthcare system

The primary healthcare system of Cambodia has struggled for many in the context of ongoing war and corruption. It is seriously under-funded as less than 1% of the country's gross domestic product are allocated for public health funding[4]. In 1996, the Ministry of Health (MoH) implemented a new health coverage policy that expanded health infrastructure by creating two tiers of service (excluding the national level): the first one being an operational district level (with 67 districts in total), and a lower level where health care centers serve catchment populations of 10000 people[5]. One aim was to provide a minimum package of activities (MPA) to each state sponsored health center, which includes the essentials of health care, including drugs and training sessions for health care workers[6]. Cambodia is continuing to make excellent developments on a political level. It is currently implementing the *Health Sector Strategic Plan 2003-2007*, established by the ministry of health in 2002[7]. The plan includes eight essential strategies towards improving the health of Cambodians by taking political action in collaboration with health sector partners. It clearly establishes the health problems in Cambodia and outlines the different areas and specific challenges to be addressed in order to improve the situation.

Although these efforts show promise, these developments exist primarily on paper only, and there has been only marginal achievement of the goals set forth, and perhaps an even lower change in the overall health of Cambodians. This is perhaps due to the widespread barriers involved in making improvements at the population level: to this end, barriers such as a lack of education and a lack of widespread trust in the possibility of an effective primary healthcare system (PHC) are also important to consider. Other less obvious reasons that substantial changes have not been made are that there are large transportation barriers, faith in locally-based traditional healers and pharmacies, and a perceived inability to pay the costs involved.

The perception among Cambodians that the PHC system in Cambodia is of limited

value is not entirely unfounded - the majority of rural Cambodian health facilities are without water, electricity, or satisfactory equipment.[8] Further, it is often the case that health center staff are only present for a few hours each day and that they frequently ask for an undercover fee for their services[9].

Given the poor state of the PHC system, it is not surprising that the health sector in Cambodia has one of the lowest rates of utilization in the world - the average Cambodian is estimated to have 0.35 contacts with organized medical services per year[10]. Currently, other sources for medical help, such as traditional healers, pharmacies, and private doctors are being used far more frequently in most districts of most areas of Cambodia.

1.3 Kep District and the Centre for International Health (CIH)

The district of Kep is a small province (population 35 434)[11] located on the southeast coast of Cambodia, and like much of Cambodia, it is heavily dominated by farming and fishing. The MoH has granted permission for the Center for International Health (CIH) to provide aid to Cambodia by piloting a healthcare program in Kep. While conducting research, clinical care and education outreach, one goal is to develop an effective healthcare system that can be applied externally to the rest of Cambodia. An overview of the research site and its activities can be found at http://intlhealth.med.utoronto.ca/CAMBODIAFIELD.htm.

The Kep pilot program is a joint project involving not just CIH, but also the National Centre for Health Promotion (NCHP) and the Operational District Director of Health (OD) of the Kep municipality. The province consists of 5 communes, 16 villages, which are serviced by 3 health centers and one hospital, which are viewable in a map in Appendix A. The CIH research station is located in Thmey village, near the water

1.4 Focus and aims of the present study

It is also the mandate both of the MoH and the CIH to develop a healthcare system that is equally available to all people of Cambodia. More specifically, it is the stipulated goal of the MoH to enable "equitable access to low cost high impact services through targeting measures and innovative financing schemes"[12]. In moving towards satisfying long term goals regarding improvements in health service, the present research study aimed to characterize the barriers involved in accessing healthcare as well as the health seeking behavior of Kep province villagers. An effort was made to learn more about the villagers' perceptions about where villagers can get help, and how they confront the relevant barriers when problems arise.

The current study expanded what had been done previously by investigating the role of the pharmacies and private doctors in detail in relation to the public health system. This is a priority as the new governmental plan aims to promote participation from both the private and the public sector in the planning of health service delivery[13]. The MoH is currently aiming not only to improve regulation of the private drug industry, but to work with it in constructive ways.

As transportation has been identified previously as a particularly limiting barrier to accessing care, the current study aimed to analyze the extent to which distance limits access to health facilities. To this end, the extent to which distance away from a public health center impacts health seeking behaviour was analyzed by mapping the locations of all surveys and quantifying the villager's attendance patterns at various places they could get help (See Section 5.2).

By identifying the barriers involved, it is hoped that more targeted methods for increasing utilization of the health centers and the hospitals will develop. Further, with a better understanding of the perceptions of

Cambodia's citizens regarding their various options and their health in general, there is potential to guide the development of Cambodia's PHC system in constructive ways.

2 A Brief summary of where Kep Villager's go for help

The five places in rural Cambodia which people go for medical treatment that were investigated in detail in this paper are the health center (HC), pharmacy (PH), private doctor (PD), kep hospital (KH), and traditional healer (TH). Each plays a unique role in servicing villagers in Kep, and one major focus in the current study was towards understanding these roles in more detail than was available previously. In order to discuss the results of the present study in a more coherent context, some background details on each provider are provided.

2.1 Health Centers

The health centers are government-sponsored institutions which provide daily service (on weekdays only), various forms of clinical outreach (including vaccinations), and education to villagers. The Kep district holds 3 health centers and they are each located in separate communes: Okrasa, Angkoul, and Pong Tuek.

These health centers differ greatly in the frequency by which they are used and the quality of services they offer, and have been evaluated recently by Skalenda (2004)[14] and Izadnegahdar (2004)[15]. The health centers do not employ any licensed doctors, and are staffed mainly by nurses and assistants. In general, the health centers are not trusted, underused, but are nevertheless cheap, and thus are an appealing option for some villagers who have the means to transport themselves to the health center, but have little money.

Although there has been much corruption regarding informal fees to staff at the health centers in Cambodia, this does not seem to be an issue in Kep, and the health centers generally charge a user fee of 1000 Riels (0.25US), which includes any potential medications that the villagers may require and that are available. Although the number of medications at the health center is considered to be rather minimal, the health center is considered to have a good supply of the medications which are available[16].

An important aspect of the health centers that is that they regularly conduct outreach in the villages. For large villages, they go once a month, and for small villages, they go twice a month.[17] These visits serve the purpose of providing immunizations, ambulatory health services, health promotion, and the advertising/promotion of health center services. The health center directors are expected to prepare a monthly schedule of outreach visits and submit it to the operational district office (OD). Village chiefs are informed with the expectation that they will inform the villagers in advance[18]. Health center staff are expected to provide their own transportation, but are compensated 2$ for the visits[19].

2.2 Pharmacies

According to the MoH, the pharmacies of Cambodia probably play the largest role in servicing the medical problems of Cambodian villagers.[20] However, the majority of these pharmacies are really only drug sellers, as they have no license or legal documentation. Although licensed pharmacists are available in some areas of Cambodia, they play a negligible role in the sale of drugs in Cambodia (both to citizens and to smaller outlets)[21]. That this was the case in Kep as well as most of Cambodia was confirmed from a discussion with an employee at the OD office who claimed that there were no "pharmacists" in Kep but only unlicensed drugs sellers. In the rest of this paper however, they are referred to as pharmacists because this is how the villagers perceive them, and to avoid confusing them for corner store drug sellers.

Although pharmacies are illegal, there is no enforcement of the law that restricts their activities. Unfortunately, most people who own Cambodian pharmacies have no medical training or pharmaceutical knowledge. According to one BMJ report, the only "qualification" required for starting a pharmacy is access to the capital to make the purchases which are necessary for business in the pharmaceutical sector[22]. To this end, much of the "training" of a new pharmacist consists of "trial and error".[23] A specific example of the problems inherent in pharmacists is that few of them understand the importance of a full course of antibiotic consumption. This may partly underlie the fact that a high prevalence of resistant bacterial stains is present in Cambodia[24]. Another related problem is that drugs are over prescribed, which may be caused not only by a lack of education but also by the private practitioner's desire to earn a greater income. By requiring the patient to come back multiple times to get more medicine, there is more opportunity to make more money.

Despite the problems associated with the pharmacies, villagers arguably place the highest degree of trust in these institutions. Some commonly mentioned advantages of pharmacies are that they provide good service, are friendly, and stock a wide range of medications. Although the details of the behaviour and demographics of pharmacy owners was not the main focus of the study, some information regarding their education and practices was collected (see appendix F).

2.3 Private Doctors

So-called private doctors are often operated by people similar to pharmacies in that they are unregulated, often have little training and possess a wide range of medications. However, the most relevant difference is that they come to the villager's home, and are usually contacted by cellular phone or by a family member or neighbour of the patient that specifically goes to request domestic help for a medical problem. They often visit villages "impromptu" looking for villagers who may need help but are unable or do not wish to travel very far. Appendix F, which lists some detail regarding the specifics of the private dealers of medicine, indicates that many practitioners operate both as a "pharmacist" and as a private doctor.

2.4 Kep Hospital

Kep hospital is the best place in Kep to get medical help for a serious problem, and is the only place in Kep with a licensed medical doctor. Kep hospital is also better than the health centers in that it has a wider selection of medications than the health centers, which are included in the price of the user fee at the hospital (30 000R or 7.5$US for one week in a bed). Unfortunately, only few of the basic equipment necessities are present for diagnosing serious illnesses; notably though, there exists an X-ray machine, which is often used for diagnosing tuberculosis. Other common services, such as prenatal ultrasound "echo" require a visit to Kampot hospital or Kampong Trach Lach, which are the closest exterior hospitals to Kep province (See Appendix A: map). The hospital is staffed by five doctors, one radiologist, three nurses and one staff member who is responsible for malaria testing[25].

Notably, there exists an ambulance system that can transport patients from the health center to the referral hospital if the health center is unable to treat them. However, there are situations in which the patient would not be able to pay the entrance fee, and therefore the ambulance service is of no benefit.

2.5 Traditional Healers.

Traditional healers, or *Kru Khmer*, are thought to play a very large role in Cambodia for various types of medical treatment and spiritual service. The discussion of the Kru *Khmer* will be confined to rural Cambodia, as the role of Phnom Penh traditional healers

differ to some extent. A significant distinction is made between those who use magic, and those who do not, although many traditional healers provide services associated with both types of traditional healers.[26] Some traditional healers are of a fixed location, while others are peripatetic. Traditional healers also differ widely in the diversity of diseases they treat; some treat almost any type of medical problem, while others restrict their treatment to specific ailments.[27] One author claims that at least one is located within each village of Cambodia, with many villages having more than one[28], and indeed, the Kep district is no exception (See Appendix A: map). Their treatments consist mainly of different combinations of herbal and plant based medicine, and it is not uncommon for traditional healers to protect the 'recipe' which describes the preparation of their medicine. Unfortunately, this lack of transparency, while perhaps justified, leads to many traditional healers adding ingredients which may be unhealthy, and lying about the quality and cost of the ingredients in order to the prices for their service[29].

Although the government provided some training for traditional healers in the 1980's, most learn their skills from those who already possess them, in the form of apprenticeships; some traditional healers travel to learn different skills from many people.[30] However, many traditional healers claim that their practices reflect no personal knowledge of their own, but only the knowledge and spiritual blessing that is handed down down to them by spiritual forces when they are required.[31]

2.6 Other avenues of medical help.

The focus of the present study was to analyze in detail health seeking behaviour with respect to those places which people consult most commonly for medical problems. However, there are many other places which play an important role in servicing Kep villagers. Villages also seek help from 'grocery store' type drug sellers, hospitals in adjacent communes, traditional birth attendants, from a birthing clinic ran out of Kep village, and from the pharmacy near the Vietnam border.

The more local drug sellers are essentially "corner" stores which sell a variety of convenience items, including simple drugs, such as paracetamol and ibuprofen. When one of these drug sellers was asked about the drugs they sold, they responded that they did not know the names of the drugs they sold, but that they understood them as "fever medicine" or "headache medicine". These drugs were recognized to be ibuprofen and paracetamol, and were sold for 500R (0.125$US) / tablet. As these establishments are the closest potential source of help for Kep villagers, it is likely that many villagers decide to try simple drugs from the corner store when they have a medical problem first before going on to seek serious help, as there may be fewer transportation costs associated with this approach.

There exist two relatively close hospitals provinces adjacent to Kep that villagers often frequent, Kampot and Kampong Trach hospitals. These hospitals are located such that Kampot is closest to Okrasa village, while Kampong Trach is located closest to Chom Kaboy village (See map: Appendix A). Both are considered to have more extensive equipment than the Kep hospital and it is common for villagers to go there first if they have the means to do so.

It was revealed during the current study that some villagers frequently used a licensed pharmacy near the Vietnam border, especially near Toul Sagam village. Some interviewees said that they had a supply of drugs that they had purchased there for long term storage and use. This may be taken as evidence that Kep villagers are aware of the problems of Kep's pharmacies to some extent.

3 Methods

3.1 Surveys.

172 surveys were conducted in the province of Kep to gain to better understand a) the health seeking behaviour of the villagers of the Kep district, b) the barriers involved in getting the medical help that villagers require, and c) the perceptions of villagers regarding the places they could get help. The survey (see Appendix B) was aimed at collecting quantitative and descriptive information that could be used to develop the CIH pilot program in Kep. There were 172 surveys collected in 9 villages (See Appendix D for listing of all villages involved). In each village, several general areas (ie. place codes) were chosen and recorded on the map for the purpose of investigating the relationship between location and health center utilization. 43 different place codes were total, and the average number of surveys per place code was 3.49.

The survey collected some basic demographic information regarding their vocations, finances, means of transportation, and questions regarding their perceptions of the various places they could get help, and specifics regarding what health seeking decisions they had made. The results from the survey questions are presented as graphs for discussion during the remainder of the article. The surveys were based on a convenience sample, but a continuous effort was made to collect data from more remote locations located far from the main roads (See Appendix A: Map) for a description of where the surveys were conducted.

Each subject was informed that no identifying information would be kept and that everything they said would be kept confidential within the group. The survey was submitted formally to the operational district health office and ethical consent was granted and documented.

3.2 Focus Groups.

The focus groups were conducted with red cross volunteers (RCV), which are people that are employed by the British Red Cross to provide villagers with knowledge and guidance about health issues. An evaluation of the red cross program in Kep and their knowledge of RCVs has been recently conducted by Dinh (2004)[32]. In this study, RCVs were considered to be generally aware of many of the health issues in their respective villages.

The focus group questionnaire is presented in Appendix B. For each focus group, between 4 and 10 people were assembled together, with the goal of discussing where people get medical help, why they make the decisions they do, and how transportation acts as a barrier to influencing these decisions. In general, there was a good mix of both male and female RCVs, although some focus groups had more men or more women. The RCVs were given 5000R (1.25US) for their participation in the focus groups, and the sessions lasted between 1 and 2 hours.

For each of the five places where villagers sought help, the RCVs were asked to discuss the first points or thoughts which came to their mind. The initial aim was to let the RCVs decide what the relevant issues were, and then use these issues to facilitate a discussion. In the cases where the group members were not very talkative, a variety of questions was asked about each place in order to spark more interest and response among the group members.

Another purpose of these focus groups was to gain perspective on some of the issues found through initial survey data, and to discuss their interpretation of the most important problems (and potential solutions) with respect to access, utilization, and transport to health services. Important points that were gleaned from the focus groups are presented throughout the rest of the article, and in particular in the general discussion.

3.3 Map of Kep. While completing this field study, a map of Kep was created, and it included a variety of buildings, landmarks, and road distances (See Appendix A). Although

various maps of Kep district did exist previously, they did not include the type of detail provided here, and had limited utility. Many kinds of landmarks were added to the map, including pagodas, police stations, district and administrative offices, traditional healers and birth attendants, red cross volunteers, health centers, and pharmacies/private doctors. Rough distances were also added between these landmarks on main roads and on most dirt roads using the speedometer of a moto.

In this study, the road distances were used to calculate, in a more quantitative manner, the degree to which distance plays a role in limiting access to the health center (See section 5.2). The map has also been given to the OD office for use in infrastructure and health planning, as well as for distribution to the village chiefs.

4 Relevant Demographics

In order to better understand how proximity and means of transportation might influence where villagers decide to seek help, they were asked what the closest place to their house was that they could get help, and also about what means they had to get there. In Figure 2, it is evident that the majority of citizens (86%) do not have access to a motorized vehicle to transport themselves to a place where they can seek help. Although a significant proportion of villagers own a bicycle, this is of limited utility, due to muddy or uphill paths, and in some cases, no path at all. However, when asked, the majority said

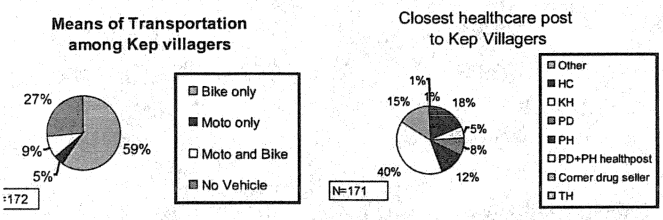

Figure 2: Villagers were asked what the closest place to their house was that they could get help, and what means of transportation they had to get there.

that they had a neighbour who they could ask to borrow their moto and pay for the gas. In many cases, neighbours with motos are willing to drive the patient somewhere they need to go. Although most expect money in return for such a favour, rarely is a payment expected up front.

Figure 2 also shows that only rarely is a public health post the closest place where villagers can seek help. Only 23 % of villagers said that either the health center or the hospital was their closest line of treatment. The fact that 60% of villagers said either a private doctor or a pharmacy was closer probably contributes the high use of private over public care.

5 Attendance

5.1 Attendance Patterns

Villagers were asked how many times they had been to each of the five places in the last two months, and the results are shown below (see Figure 1). It is clear that the rate at which villagers use the pharmacies and private doctors is far greater than the rate at which they use the health centers and hospital. 57% (98 / 172) of the respondents had never been to a health center before, whereas only 20% (20 / 172) had never been to a pharmacy before.

Most evidently, very few people have visited a traditional healer. Almost everyone

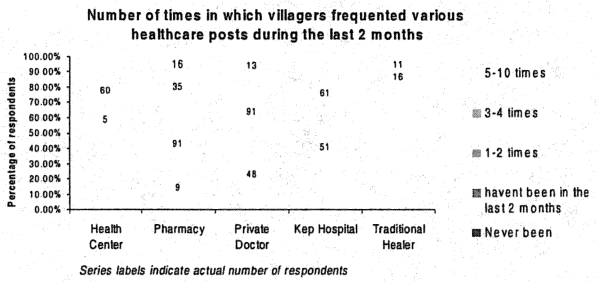

Figure 1: Villagers in the survey were asked how many times in the last two months they had sought treatment in each particular way.

who had not been to a traditional healer said that they had not been because they do not trust them. Kep seems to be an exception in this case, as most sources indicate high involvement of traditional healers in medical care in the rest of Cambodia.

5.2 Quantifying the relationship between distance from health center and attendance patterns.

To analyze the extent to which distance plays a role in limiting access to the health center, the association between distance and attendance rates was investigated statistically using a chi-squared test. Attendance rates and distance from the closest health center were used as categorical variables. The attendance data was collapsed into two categories: "been to the health center before", and "has not been to the health center before". Distance data for each interview was extracted from the map using the place codes, which corresponds to the area in which the interview took place. Each place code was assigned to be "far" or "close" by estimating the distance from that place code to the closest health center. Interviews deemed under 3 kilometers were considered close and those over this distance were considered far (see Appendix A for the location of the place codes and Appendices D and E for a description of the place codes).

Only the141 villagers who were located closer to a health center than to the hospital were included in this analysis because most villagers who are close to hospital would usually go there instead of the health center

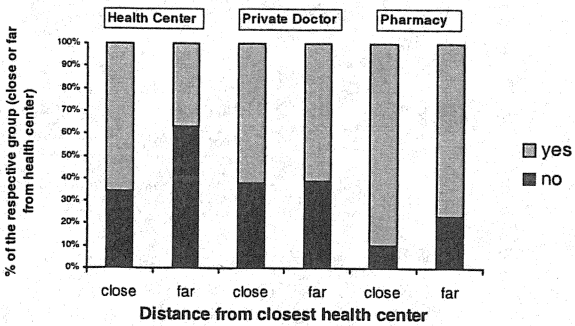

Figure 3: For the close and far groups, the percentage of respondents who had been to the health center, pharmacy, or private doctor before was calculated for villagers who were close and far from the health center.

when considering a public option.

The analysis yielded a significant value (>0.000) for the chi-test that tested the null hypothesis that close and far interviewees did not differ with respect to whether villagers had or had not been to the health center in the last two months. In contrast, there was no difference in pharmacy and private doctor attendance among the far and the close group. Figure 9 shows that among the close group, there were more people who had been to the health center than had not, and that among the far group, there were more people who had not been than had been. These results are to be expected if distance from the health center negatively impacts health center attendance.

If villagers who are far from the health center go there less, than it can be hypothesized that they may use private sources of treatment more. However, as the relevant chi-squared tests were not significant, the results from the pharmacy and the private doctor indicate the opposite -- whether a villager is close or far from the health center has no impact on whether they use a pharmacy or private doctor.

The results suggest that distance away from the health center is a quantifiable barrier to accessing this institution. However, the data also indicate that it does not lead villagers to use private sources of treatment more often. This may reflect the fact that the sample size was not big enough to detect subtle differences, or because people who are located far from the health center are either seeking care from other sources (such as from the hospital, traditional healer, etc), or because villagers in isolated villagers are simply accessing medical treatment less often.

5.3 The impact of location on hospital attendance

There was much variation amongst the villages in attendance of hospitals. Much of these differences can be explained by

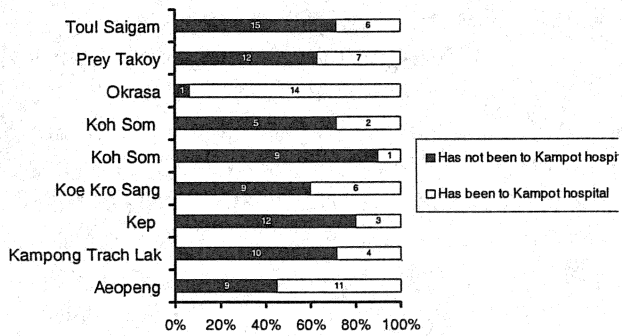

Figure 4: Okrasa had a significantly greater attendance rate of Kampot hospital than other villages.

demographic location: for example, people interviewed who were from Kep village and Koe Kro Sang village, which are close to Kep Hospital, were found to go there for serious, as well as relatively minor problems or illnesses (Data not shown). In contrast, villager's located far from any public healthcare institution, such as Angkoul or Chom Kaboy (See Map: Appendix A), used mostly locally based and more easily accessible private sources of aid, such as the pharmacies and private doctors over the hospital.

The extent to which other hospitals are frequented is also affected by distance. In particular, the rate at which Kampot hospital is used by Kep villagers is also dependent on location. For example, in Okrasa, there was a very high usage rate of Kampot hospital, and it is the closest village to Kampot (See Figure 4).

5.4 Where people go when treatment doesn't work.

In order to understand the villagers' health seeking behaviour in more detail, villagers were asked where they would go if their first line of treatment did not alleviate their medical problem. While these questions are informative, they only reflect the opinions of those people who had been to the institution of interest, as the questions were asked only if they had actually been to the place under consideration.

Encouragingly, Figure 5 indicates that the majority of the 74 participants (73%) who had been to the HC before indicated that they would go to the hospital if the treatment from the HC did not work. This indicates that there exists some awareness of the referral aspect of the public healthcare system. However, in reality, a trip to the hospital is often expensive or impossible for villagers in isolated areas, even despite the fact that the service fee is usually cheaper than hiring a private doctor.

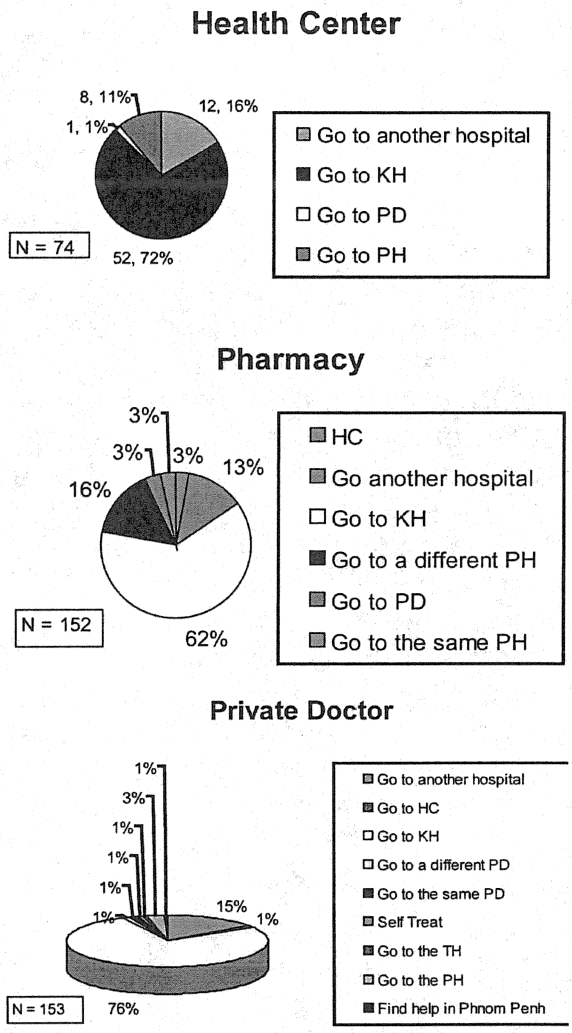

Figure 5: If villagers had been to either the health center, pharmacy, or private doctor, they were asked where they would go if that treatment was unsuccessful.

For the PH and the PD, it is encouraging that 62% and 76% of people stated they would go to the hospital if their first line of treatment didn't work. For the private doctor, a further 15% stated that they would go to another hospital. Interestingly, this was corroborated by a discussion the author had with a pharmacist, who stated that if the disease appeared to be serious, they referred them to the hospital for further consultation.

It is notable that a relatively low number of people went back to the same pharmacy if the first line of treatment didn't work. This is of interest because many pharmacies have been known to issue medication on a forced renewal basis, issuing just enough medication to have some effect, but not enough to cure the disease. In many cases, it is said that patients are forced to go back again and again to receive the same type of treatment while paying the same price every time.

This can be compared with the health centers, which also commonly give an inadequate supply of medicine; however, when villagers come back to the health center, more drugs are free or come at a much cheaper rate. One RCV from the focus groups said that it costs 1000R (0.25US) for the first 3 days of a medication, and 500R for each subsequent follow-up on more medication. The extent to which the price difference between the health center and private pharmacies is offset by the difference in transportation cost presumably depends on the demographic location of the villager.

5.5 Where people go for help for what situations

Villagers were asked what they would do when a problem was serious or simple, and they were asked what types of conditions they went to each source of help for. Further, the health seeking behavior in three medical situations was analyzed. The situations were meant to give further detail regarding how villagers would confront certain problems.

Each time that respondent mentioned that they had attended a place for help in the last two months, they were asked for what conditions they had gone there for. Respondents often gave as many as 4 different conditions for this question. The number of times each condition was mentioned was counted for each different place that the villagers were asked about. The number of times each condition was mentioned is listed in Appendix F. Notably in

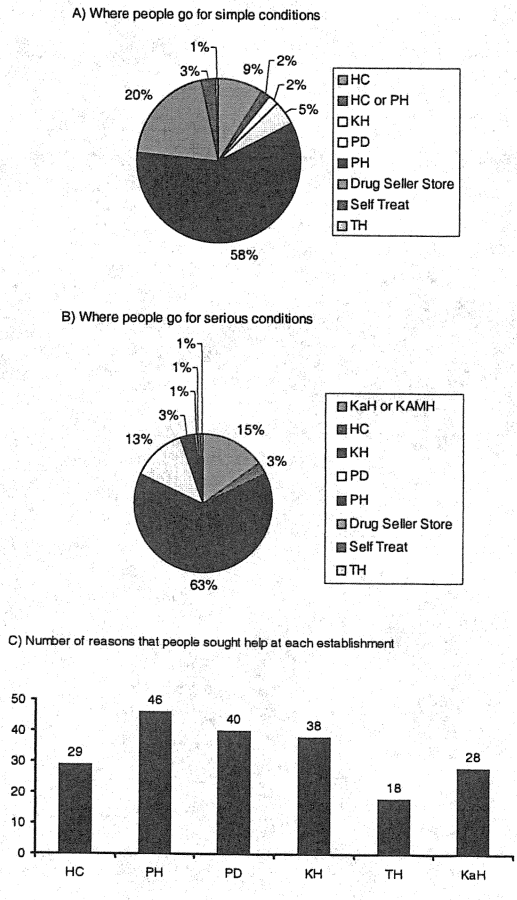

Figure 6: Kep villagers were asked where they go for serious and simple conditions (A and B). In a separate question, they said they had been to one of the five places investigated, they were asked what types of conditions they had gone there for (C).

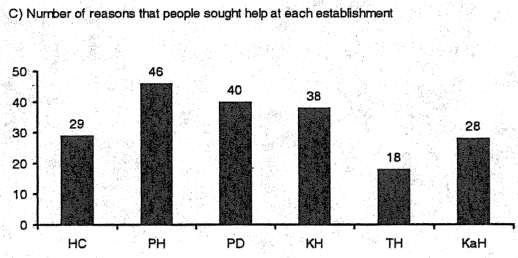

Figure 6C is that people go to the pharmacy for the greatest number of different kinds of problems.

The data illustrate that not only is there higher utilization of the private dealers of medicine, but that the higher utilization includes a wider diversity of conditions. Further, it is apparent from Appendix F that people go to the pharmacy not just for simple conditions, but also that they sometimes go there for severe problems such as malaria, typhoid, and dengue fever. This has the potential to be problematic in that uneducated pharmacists may not diagnose these serious conditions until they become seriously symptomatic. However, despite this, the majority do go to the hospital when they have a serious condition (see Figure 6B).

The fact that 64% of people use a Traditional Birth Attendant (TBA) in a birthing emergency is unfortunate because TBAs have no medical training and may have difficulty with challenging deliveries or those that have rare complications (See Figure 7). However, TBAs are said to be relatively proficient, and there are few transportation barriers that need to be overcome when choosing this option. Importantly,, TBAs come to the villagers home, which may be necessary when there is no practical possibility of transporting the patient using substandard means. More information on the role of TBAs can be found in Kalaichandran (2005), which analyzes the issue of maternal morbidity in Kep.[33] Fortunately though, the CIH was able to train 16 TBAs in the Kep province in 2004, where they learned skills regarding the basics of delivery, emergencies, and when to refer the patient to the hospital[34]. The relevance of transportation issues when women need to give birth is discussed further in the general discussion under transportation.

The data for a severe cold and severe diarrhoea confirm both that villagers differ in their choices for healthcare and that they choose predominantly sources of care in the private sector. Particularly notable is that only 7 and 9 % of villagers said they would go to the health center in these situations, and that only 9% said they would go to the health center for simple conditions and 3 % would go for serious conditions. Together, these data suggest that health center visits probably account for no more than 10% of all health seeking behaviour.

The wide variation in health seeking decisions may be due to the fact that there are many factors involved when villagers decide where to get help. Deciding where to go may be in many cases, a matter of weighing pros and cons of the various treatment alternatives. The three factors which most likely carry the most weight in making this decision are likely

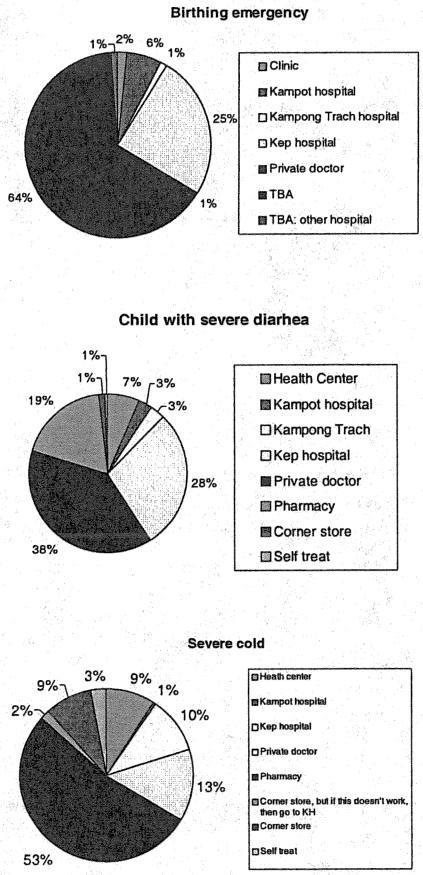

Figure 7: Villagers were asked where they would go if one of the above problems occurred within their family.

to be a) the consequences of not recovering, b) the chances of recovery after seeking a given line of treatment, and c) the total cost associated with each line of treatment (including transportation and relevant fees).

For example, if villagers live close to a corner store or pharmacy, and the problem is minor, it is most likely they will go there first, as it is unlikely that they will be willing to invest enough resources to seek treatment at a location located farther away. However, if they believe the consequences of not getting better are severe, they may decide that getting better treatment is necessary. One important issue that remained unresolved in the current study was how villagers decide what a "serious" or "simple" condition consists of. Given that most villagers' are uneducated and often are known to live with medical problems that severely impair their qualify of life and do not seek treatment, it seems likely that their threshold for what constitutes a "serious" condition may be quite high.

In the cases where villagers do decide to seek treatment, it is probable that villagers often have to balance transportation costs with fee payments. For example, the health centers are usually cheaper, but the transportation costs and lack of accessibility may far outweigh the low cost of treatment. In the cases where villagers live closer to the health center, it is much more likely that going to the health center will be a viable option.

8 Overall barriers to accessing healthcare

In a previous study that examined transportation issues in Kep, Comeau (2004) examined the extent to which different factors play a role in limiting the ability of villagers to get to the health center or to the hospital in Aeopeng village. Interviewee's were asked whether the extent to which five separate factors were limiting for them when they needed to get to a health center or hospital (see Figure 11). This previous question was used again in the current study for all villagers under investigation. This was done both to make comparisons at different points in time, but also to develop an understanding of the extent to which transportation limits health center and hospital utilization. Villagers were asked whether to say whether each of the five factors was a "major problem", "minor problem", or "no problem".

As can be seen from the data, the variation among "cost of treatment", "distance is too great", and "transportation is too expensive", is rather minimal. This may be because all 3 factors are all relatively large barriers, or because the question was not effective in probing how different these barriers are. However, the fact that they were collectively all much greater than "cannot afford to miss work" suggests that the interviewees are able to differentiate between potential problems in this problem format. This leads one to believe that the reason the variation is so minimal is because they may all be similarly important limitations.

Interestingly, the results from this question suggest that the extent to which distance to the public health care system is an

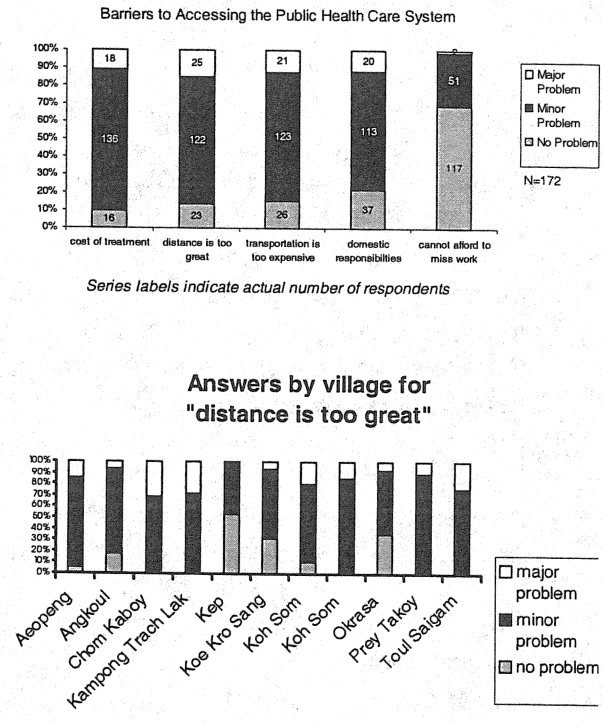

Figure 8: Villagers were asked whether they thought the barrier under consideration was no problem, a minor problem, or a major problem (left). On the right, the issue of transportation is viewable by village.

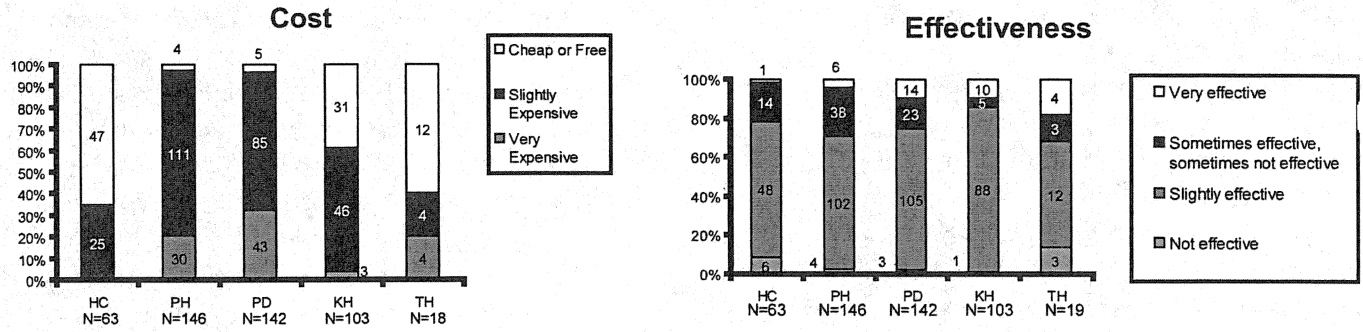

Figure 9: If a villager had been to one of the places asked about, they were asked about both the price and the cost. For cost, they were asked whether the treatment was cheap, slightly expensive or very expensive. The question was phrased similarly for effectiveness, but many chose to say that the treatment was sometimes effective, and sometimes not.

issue for villagers depends on how close they are located to it. When the factor from Figure 11 "distance is too great", is looked at by village, it can be seen that villages that are located particularly close to the health center or hospital do not have as much of a problem with distance as do villagers that are located far away. In particular, among the villagers of Kep village, which is the village where the hospital is located, 8/15 (53%) of respondents said that distance was no problem. This was also the case with Okrasa village, which has a health center located relatively near it as well.

Indeed, both transportation and cost of treatment are similarly large problems. The average monthly income among the sample interviewed was found to be 25.7$US, while the average amount of money spent on medical treatment was found to be 7.7$US, thus representing an average of 30% monthly income spent on medical treatment. A fair proportion of villagers reported spending more on medical treatment per month than they earned, thus suggesting that medical treatment was continuing to leave them more and more indebt.

Some villagers reported that they had had to sell land to afford treatment for a dieing family member. One villager explained that without their land, they lacked a means to gain capital by which they could pay or take account of their continuing dept from medical expenses. As such, selling off ones land to pay medical expenses can lead to a negative feedback system which can leave families indebt and no means to provide for their families.

One reason why domestic responsibilities may be a significant barrier is that ensuring that small children are attended to at all times remains a large problem for some villagers. This was mentioned quite often during the focus groups, and also by a number of interviewees. This differs from missing work, because in most cases work is usually farming and involves a relatively flexible schedule.

6 Perceived cost of the places to get treatment

If a respondent had sought help from a particular place we inquired about the associated costs for treatment. This question illustrated that a significant advantage of attending the health centers is that they are cheaper (See Figure 0). Over 60% of respondents reported the perceived cost of the HC to be cheap, whereas very few people found the PH or the PD to be cheap. It is reported by many RCVs that if the patient is truly poor, they can receive free treatment at

the health center. Although time limited full investigation of this, it was claimed that RCVs can sign a form confirming the financial position of the patient, and they can then receive treatment for free.

The cost of KH was also reported to be relatively cheap, but was considered to cost more than the health center. Prices at the hospital operate such that a patient pays about 30 000R (7.5$) for a bed for a week, but often if the patient needs to stay longer than there is no charge. Also, if the patient has no money, but requires treatment, the hospital staff will tend to them, with the expectation that they will pay later. A further advantage of the hospital is that for tuberculosis, drugs are given out free. It may be surprising that the attendance rates at the hospital are so low given that such a high percentage of villagers find the price to be cheap – however, this discrepancy is explained by the inordinate transportation costs that are usually involved in getting to the hospital.

The private doctors and pharmacies were seen as much more expensive than the public sources of treatment. These sources often stock relatively modern, expensive drugs and give them out irresponsibly. One problematic factor that drives up the cost of private sources of treatment is that the private sources commonly use injections because the villagers erroneously believe them to be more effective, even when cheaper and similarly effective pills of the same drug are available. There is little incentive for dealers of medicine to convince patients of the equality of the two types of administration, as they can charge the patient more by using injections.

It is difficult to get an accurate gage on the perceptions of the prices of the services provided by traditional healers because so few people had ever used them in Kep (N = 19). In some of the villagers interviewed, it was widely reported that often the traditional healer did not charge a specific price for the services, but left the option of paying to the patient. In other cases, payment was mandatory if the treatment was effective, but not necessary if the treatment was ineffective. These two aspects of traditional healers in Kep – lack of trust and low price -- seem to make Kep's traditional healers an exception in Cambodia, as this is not generally considered to be the case in most areas.

7 Perceived effectiveness of the places of to get treatment

While it was difficult to draw specific conclusions from the data regarding how villagers perceived the effectiveness of their treatment options, the data suggest that the health centers were viewed as less effective than the private doctor and the hospital (See Figure 9). This is consistent with the opinions

Figure 10: If villagers had been to both institutions, they were asked to say say which one they thought had more skill.

of most RCV's, as many felt that many villagers were not sure if the staff working at the heath center were effective or not. Although the traditional healer seems to be viewed as quite effective, this may be referring to only specific conditons that the traditional healer can treat, as most traditional healers in Kep specialize only in a few types of treatment.

The perception that the health centers are not as effective as the other sources of aid is expected, however, it is interesting that the difference is actually quite minimal. This suggests that the principle factor underlying the lack of usage of the health centers may not be a lack of confidence in their ability.

8 Perception of skill: A comparison between the HC and the PH, and between the HC and at the PD

As the health center and pharmacy / private doctor were not judged to be greatly different in efficacy, it is of interest to compare more directly whether villagers perceive a difference between the skill of the private doctor, pharmacy, and health center worker. Of the villagers who had been to both the pharmacy and health center, or to the private doctor and health center, they were asked which they perceived to have more skill.

Figure 10 shows that the pharmacy is viewed by the majority of respondents as more skillful than the health center staff. Perhaps most interestingly, there were villagers who believed that even though the same people both worked at both the pharmacy and the health center, they were more skillful when they worked at the pharmacy.

One explanation for this is that they receive increased payment when they are working at their own pharmacy as compared to the health center and therefore have greater incentive to make an effort. Another reason is that when they are working at their own pharmacy, they are able to prescribe better and more modern drugs than what is available at the government funded health centers. Further, it is possible that villagers may assume that because the pharmacists appear to provide better service, that they have greater knowledge about medicine.

A similar pattern of results was seen when the health center and the private doctor were compared. This is not surprising given that in many cases the same person fulfills all roles: health center worker, pharmacist, and private doctor (See Appendix G for more details).

10 Reasons for not accessing the health center

Pivotal to the CIH pilot program is an understanding of precisely why such a high percentage of people continue to choose not to use the health centers. To this end, the villagers that stated that they had never been to a health center were asked why, and their answers are located in Figure 11. One immediate observation is that there is no single reason why health centers are underused. This is indicative that any approach to increase utilization of the health centers may require multiple lines of effort and further research.

However, some factors stand out: in particular, shown here is that distance plays a particularly large role in limiting health center usage. This research is consistent with a study by Comeau (2004)[35] that also found transportation to be a significantly limiting

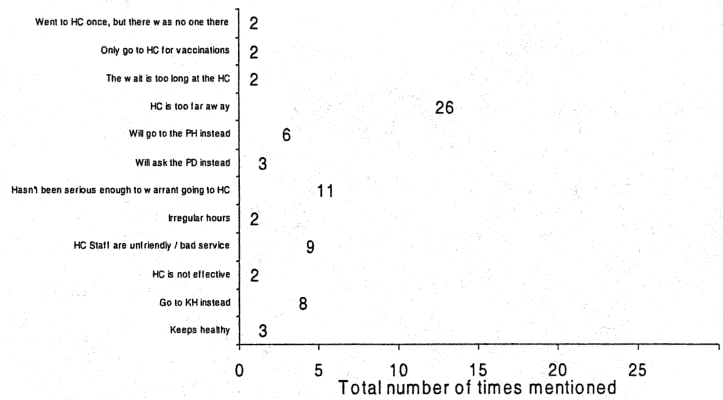

Figure 11: When villagers had never been to the health center, or if they had not been in the last two months, they were asked why they had chosen not to go.

factor for health care access, and that a good percentage of people are concerned about care for a family member but can't get to a place where they can proper care. Together with this past study, the current evidence suggests that increased attention should be paid to transportation issues in the Kep district and other similarly rural districts in Cambodia.

The fact that 9 people said bad service was why they had chosen not to use the HC confirms that villagers perceive health center staff to provide poor service and that they are not sensitive to the needs of the people. The bad service is probably reflective of the inadequate wages that health center staff receive (~10$/month). This results in a proportionately low level of commitment towards aiding villagers in this setting. One health center staff member has stated that a wage of 50-100$ is a more reasonable monthly salary[36].

During the focus groups, it was stated that another reason villagers do not go to the health center is because health center staff often encourage patients to visit them in their own private pharmacy instead. This may not only be desirable for the health center staff, but also for the villager, as there may less transportation barriers involved and a greater number of medications that are available for treatment. Even more troublingly, there is some suspicion, both from villagers and from the RCVs, that people who work in both locations steal medicines and use it in their own private practice, or sell it to other sources.

The fact that a proportionately high number of people stated that they hadn't had a serious enough problem to warrant going to the health center indicates that many villagers will go elsewhere if they feel the problem is not that serious. This is interesting, given that other questions (See Figure 6) indicate that the health center is somewhere that people go, if anything, only for simple conditions.

11 General Discussion

The present study was a descriptive quantitative study that aimed to investigate the barriers that limit public health system utilization in the context off health seeking behavior. Many more specific issues were investigated, such as the perceptions of the various places where people seek help, transportation issues, cost, effectiveness, and hypothetical behavior in various situations. In the following discussion, ideas that came up frequently during the course of the study are investigated in more detail

11.1 Transportation

A quick consultation of the map (Appendix A) yields observation that there are many areas of Kep which are a long distance from the health center. An equally great problem however, is the quality of the terrain between the villagers and the health centers and hospitals. Particularly in remote areas such as Angkoul and and Pong Tuek communes, there are often only very rough, unpaved, dirt roads which are unreliable and quite challenging to traverse, even for a healthy and relatively savvy research translator. The frequent and spontaneous rains and storms during the wet season do not make matters any easier.

A frequent line of action of action when one gets sick is to hire a motodup (low horse power motocycle) or motoremorque (motodup with a cart on the end of it). Another line of transportation to Kep hospital is by boat, which is used from the Angkoul commune seaside to the shore in Kep village. Moto-remorques are particularly useful for transporting people who are too sick to ride a conventional moto or must be kept in a horizontal position. The price of this service varies depending on the time of day – the price can vary from a very little, if the distance is close and it is during the day, to over 10 ten dollars, if the distance is far and it is during the night. However, the motoremorque is hardly a perfect solution, as there is a great potential

for injury during rides taken on paths with bumps and other hazards. This is especially so for villagers who live in more remote areas without paved roads.

According to most villagers, there was very little difference in the price for using a motodup or a motoremorque, although this is sometimes an issue. One unfortunate factor is that drivers often charge more for driving villagers whom are sick due to the extra time and care involved in these situations. Although there are a fair number of people who have motoremorques in the Kep area, most of these motoremorques are unavailable to the majority of villagers.

A common situation in which urgent transportation is required occurs when a woman needs to give birth. Although the majority of villagers use the TBA, 31% choose to seek help at either the Kep or the Kampot hospital and thus require transportation during this situation (See Figure 0). One advantage of seeking help at the hospital is that there is a doctor there who specializes in obstetrics. Transportation of a woman about to give birth presents with many difficulties and is also dangerous, and these difficulties may be why such a significant proportion of villagers choose to use a TBA.

In other areas of Cambodia, such as Siep Reap, there are currently ongoing village emergency response pilot programs which are being implemented[37]. In such a program, some villagers are always "on-call" and are available to drive the patient by moto to the hospital. The prospect of such a program in Kep was considered before by Comeau (2003), who examined the potential of this program in Aeopeng village, and stated that many villages in Kep would be well suited to this idea.

Indeed, there is much indication that villagers are willing to help each other in emergency transportation situations. 83% of villagers stated that their neighbors would be willing to help transport them to a place where they could get help if they were required, and in most cases, this included help recruiting a form of transportation or providing a moto for use in the emergency situation. Many villager reported acting cooperatively by using hammocks to transport sick people to the road, where they can find a motodup. The atmosphere of cooperation in Kep district may be taken as evidence that a community transportation program in Kep may be a worthwhile effort.

Many RCVs recommended that a potentially good NGO contribution would be to provide available moto-remorques for use by the public during emergencies. This was recommended on many separate occasions, with some suggesting that it would be most appropriate for operation out of the health centers, and others suggesting the moto-remorques should be kept in the villages. The former option is probably more realistic however, as there are more villages than health centers. Among the RCVs that suggested these ideas, there was high confidence that the majority of villagers (one RCV guessed 70%) that the villagers would take advantage of this and use the health centers more often. Another idea which came up several times was to find a means to offer the RCVs more funding so that they had increased means to pick up villagers from their homes and bring them to the health center or hospital.

11.2 The financial status of citizens

The Cambodia, the degree to which citizens can afford treatment has a drastic impact on ones chances of recovering from a medical condition. At many times, RCVs stated that rich people often hired well-trained private doctors, went to Kampot hospital more frequently, or went to some other out-of-province establishment (such as Phnom Penh, Saigon, etc). Whether villagers are poor is an issue that is connected to the issue of transportation, because with enough capital, transportation is always feasible. Many RCVs stated that when poor people get sick, it is

most common for them not to receive the aid they require.

In the Angkoul focus group, there was a discussion regarding the possible lines of action a villager might take if they went to the hospital and could not get better there. This is indeed often the case – one consequence of a widespread inability to get to the hospital is that health seeking behavior is put off until the disease becomes too severe to treat, and a hospital visit does not lead to the desired results. In the case where the hospital can't treat the condition, the RCVs stated that rich people would usually go to Kampot or to Saigon, but that a poor person was often left with no choice but to come home. Although there is a free ambulance that transports patients from Kep to Kampot, this does not necessarily cover the cost of treatment and therefore does not present with a viable option for many villages.

Also during the Angkoul focus group, the RCVs stated that for some conditions, such as convulsions and "crazyness", the local traditional healer can be even more effective than the hospital. They attributed this to the fact that the traditional healers dealt more specifically with the patients spiritual difficulties. As such, it is relatively common for a villager to get seriously ill, but believe that it is due to a sin that they have committed recently. As such, they go first to the traditional healer for spiritual enlightenment, and if this does not work, only then do they make a trip to the hospital.

11.3 Pharmacies and Private doctors

One advantage of the pharmacies and private doctors is that they are almost always open every day, 24 hours a day, which is a huge advantage over the heath center, as it is only open from early morning ~7 to ~4 on weekdays. However, there are no exact hours: it is quite common for there to be days in which no staff attend the health center at all. According to RCVs from multiple villages, the fact that villagers can rely on the pharmacies to such a greater extent is probably a substantial reason why they turn to this line of help so commonly.

Another way in which the private sources of aid differ from the public sources is that the private sources often do not require payment upfront, and will allow the patient to 'owe' the treatment provider until the subject is better in a position to provide payment. However, if the patient continues to require aid, or if payment is not received within a certain amount of time, it is likely that the patient will have to sell personal property (land, farm animals, etc) to pay the provider back for the services provided.

Although all the pharmacies in Kep are technically illegal, many of the RCVs differentiated between those that were run by a health center worker and those that were not run by a health center worker, with the implication being that only the ones run by a health center worker could be trusted. Indeed, as was repeatedly noted, there is no reason for a villager to trust the skill level of a health center over a private source of care if they are aware the same person works at both.

It is unfortunately true that the treatment given from pharmacies and private doctors can often harm patients. The author had the opportunity to interview a family whom had let a private doctor give medication to their baby, and whom had subsequently developed lifelong aphasia and motor coordination problems, not present before the medication was taken but which occurred immediately after. Another specific problem is that most private practitioners are said to be unable to read the medication packages of the drugs they buy, and so are unable to tell if a medication has expired.

The lack of regulation of private practitioners leads not only to incompetence, but also to the possibility of them cheating patients for financial gain. One RCV said that recently, an employee of the operational district health office had been to each Kep village in order to warn the villagers that

private doctors often tell the patient that they are more ill than they really are in order to scare them and coerce them into paying for more expensive treatments. The RCV who explained this said that there was increased attendance to the HC since this visit.

One line of investigation for future research is to establish to what extent the skills of the private doctors who work at the health centers differ from those that do not work at the health centers. Although some basic details were acquired for each pharmacy / private doctor, it was not possible to investigate the quality of the services that they offer as compared to the health center.

11.4 Traditional healers

The attendance data and the RCV statements lead to the observation that traditional healers play a relatively small role in village medical care. Not only was trust very low, but the prices there were also considered to be fairly low. During the focus groups, it was learned that in many cases payment is only required if treatment has had a positive impact.

In Kep, traditional healers were consulted mostly for symptomatic relief of very specific ailments, such as snake bites, arthritis, broken bones, and "crazyness" (See Appendix F for summary of what conditions people seek help from the TH for). In some villages (in particular, Toul Sagam) traditional healers consider their treatment to be on a spiritual level but yielding ultimately positive treatment outcomes for people who are sick. Traditional healers are also consulted during pregnancy to the extent that villagers seek their herbal medicine to ensure the prospective health of their newborn[38].

11.5 Education that may lead to better health outcomes

Education was continuously cited by RCVs as a significant barrier to the good health of the villagers they service, because they are unable to understand the basis of good health decisions. Poor education makes it difficult to communicate the rationale for many health interventions, such as immunizations, health promotion counseling, and antenatal care. Encouragingly, the RCVs in almost all focus groups reported that they continuously encouraged the villagers to trust and frequent the health center and referral hospital, and that this often had a positive impact on health center attendance.

Poor education among the villagers was commonly identified as posing a problem for villagers with serious illnesses because it allowed private dealers to convince them to come back repeatedly for treatment that doesn't work. This leads them away from considering the necessary trip to the hospital where better treatment can be acquired.

Beyond just encouraging attendance at the health center, education can be used to inform villagers to investigate the training of private practitioners in order to ensure that they have the necessary qualifications to suggest appropriate medicine. For villagers who are poor and live too far away to afford transportation to the health center, it may be beneficial to educate them of a pharmacy that is headed by someone who works at a health center, as this would at least guarantee that they are seeking medical help from someone with at least some standard of training.

11.6 Summary of Recommendations

- Improve the quality of health center services. An emphasis should be placed on better service, better equipment, more educational outreach, higher salaries for employees, electricity and generators for all public health establishments, and a wider diversity of drugs.

- Provide health center staff with greater salaries.

- Consider working with the health center staff and RCVs to investigate the

possibility of acquiring moto-remorques for transportation to the health centers for villagers for serious medical problems or in emergencies.

- Provide a means to regulate the pharmacies, and / or educate the pharmacy owners about the basics or medicine, such as reading medicine labels and expiry dates.

- Consider opening the health centers 24 hours a day and on weekends. This was recommended as mandatory from both interviewees and RCVs.

- Work with and develop the Red Cross Volunteer system. Good education of villagers about where to go for help may be implemented by providing the RCVs with information that can be passed on to villagers.

- Develop programs that build upon community participation in whatever way works for each village. One possibility would be to have a system whereby families looked after each others children when the parent (s) of the family needs to seek medical assistance.

11.7 Limitations of this study

- There are certain aspects of the provision of medical care in Kep that could have been investigated further but were not because of time constraints and other reasons. In particular, it would have been beneficial to interview the staff at the health center and hospital to learn more about their perceptions of low health center attendance.

- The sample size of the current study was limited to 172, and was not based on a random sample but was instead based on a convenience sample.

- The role of the corner drug stores and the external hospitals was not understood until later during the research, and as such, there were limited questions that were asked regarding these lines of treatment.

12 Conclusions

In order to further develop the primary healthcare system in Kep, it is necessary to understand the perceptions of villagers regarding how to get medical help and the barriers they face when trying to access help. To this end, the current study aimed to provide some descriptive data that may aid in development and planning of the PHC system in Kep and other similar rural areas. Overall, the results of this study suggest that three problems regarding health seeking behavior need to be addressed in Kep in order for access to health services to significantly improve:

1) The significant distance between many villagers and their closest health center and hospital limits effective medical care.

2) The health center's are under-funded and consequently staff uncommitted employees who do not provide adequate services to Kep villagers.

3) Villagers rely upon other sources of unregulated treatment for serious medical problems, or lack the education to decide to get help in the first place.

Improving the existing PHC system therefore, relies on targeting these issues more directly than has been done in the past.

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Appendix A: Map of Kep

The red place codes indicate where surveys were conducted, and the numbers on the roads represent rough estimates of distances between the areas indicated.

Appendix B: Survey

KEP Health Access Questionnaire, Summer 2005

SURVEY INFORMATION

Subject/Family #:

Village:

Time and date:

A) PERSONAL INFORMATION

1) Sex_____

2) What is the closest health center to your house?_____

3) What do you do to earn your money**?**_____

4) How much money do you earn in one month?_____

5) How much money do you spend on medicine and treatment in your family per month?_____

6) What is the closest place to your house that you can get help when you are sick?_____

7) Do you have your own family vehicle?_____

B) BARRIERS TO ACCESSING HEALTHCARE

8) What type of barrier is each of the following to getting to the health center or hospital? **(Severe Barrier / Mild Barrier / Not a problem)**

a) cost of treatment and medications **(Severe Barrier / Mild Barrier / Not a problem)**

b) distance is too great **(Severe Barrier / Mild Barrier / Not a problem)**

c) transportation is too expensive **(Severe Barrier / Mild Barrier / Not a problem)**

d) domestic responsibilities **(Severe Barrier / Mild Barrier / Not a problem)**

e) cannot afford to miss work **(Severe Barrier / Mild Barrier / Not a problem)**

C) TRANSPORTATION

9) If you needed to get to the hospital in an emergency, would people in your village help you find a way to transport yourself? **(Y/N (please circle)**

If Yes: How would they help you?_____

10) Do you know of a moto-remorque near your house you could use if you needed to get to the hospital?

11) Do you know of a motodup near your house you could use if you needed to get to the hospital?

D) HEALTH CENTER

12) Have you ever been to the HC?

Y/N (please circle*) If Yes:* Continue. *If No*: Why haven't you been? (go to next section if No)

13) How many times have you attended a health center in the last two months? **(please circle one)**

A) 0

B) 1-2 times

C) 3-4 times

D) 5-10 times

14) How effective is medical treatment at health centers? **(Very Effective / Slightly Effective / Not effective)**

15) Under what situations do you go to the health center?_____

16) How long does it take to walk to the HC?_____

17) What do you think of prices at the health center? **(Very Expensive / Expensive / Cheap)**

18) What are the hours at the health center?_____

19) Do you think the health center hours are reliable or unreliable? **(Reliable / Unreliable)**

20) If you went to a health center and got treatment that didn't work, would you go back or would you go somewhere else?

_____

E) PHARMACY

21) Have you ever been to the pharmacy?

Y/N (please circle*) If Yes:* Continue. *If No*: Why haven't you been? (go to next section if No)

22) How many times have you attended a pharmacy in the last two months? **(please circle one)**

A) 0

B) 1-2 times

C) 3-4 times

D) 5-10 times

23) How effective is medical treatment at pharmacies? **(Very Effective / Slightly Effective / Not effective)**

24) Under what situations do you go to the pharmacy?_____

25) How long does it take to walk to the pharmacy?_____

26) What do you think of prices at the pharmacy? **(Very Expensive / Expensive / Cheap)**

27) What are the hours at the pharmacy?_____

28) If you went to a pharmacy and got treatment that didn't work, would you go back or would you go somewhere else?

_____

29) Who has more skill in treating you, a health center worker or the pharmacy?_____

F) PRIVATE DOCTOR THAT COMES TO YOUR HOUSE

30) Have you ever been to the pharmacy?

Y/N (please circle*) If Yes:* Continue. *If No*: Why haven't you been? (go to next section if No)

31) How many times has a private doctor come to your house in the last two months?

A) 0

B) 1-2 times

C) 3-4 times

D) 5-10 times

32) How effective is medical treatment when the private doctor comes to your house?**(Very Effective / Slightly Effective / Not effective)**

33) Under what situations do you ask a private doctor to come to your house?_____

34) How long does it take to walk to the private doctor's house?_____

35) What do you think of prices at the private doctors house? **(Very Expensive / Slightly Expensive / Cheap)**

36) When is the private doctor available?_____

37) If the private doctor came to your house and gave you treatment that didn't work, would you go back or would you go somewhere else?_____

38) Who has more skill in treating you, a health center worker or the private doctor that comes to your house?_____

G) KEP HOSPITAL

39) Have you ever been to the hospital?

Y/N (please circle*) If Yes:* Continue. *If No*: Why haven't you been? (go to next section if No)

40) How many times have you attended a Kep Hospital in the last two months? **(please circle one)**

A) 0

B) 1-2 times

C) 3-4 times

D) 5-10 times

41) How effective is medical treatment at the Kep Hospital? **(Very Effective / Slightly Effective / Not effective)**

42) Under what situations do you go to the Kep Hospital?_____

43) What are the hours at the Kep Hospital? _____

H) TRADITIONAL HEALER\

44) Have you ever been to the hospital?

Y/N (please circle*) If Yes:* Continue. *If No*: Why haven't you been? (go to next section if No)

45) How many times have you attended a Traditional Healer in the last two months?

A) 0

B) 1-2 times

C) 3-4 times

D) 5-10 times

46) What do you think of prices at the Traditional Healer? **(Very Expensive / Expensive / Cheap)**

47) How effective is medical treatment at the Traditional Healer? **(Very Effective / Slightly Effective / Not effective)**

48) Under what situations do you go to the Traditional Healer?_____

I) HYPOTHETICAL USE OF EXISTING INSTITUTIONS

49) If you had a simple medical condition such as a fever, where would you want to go first to get help?_____

50) In a serious medical situation, where would you go to get help? _____

51) Have you ever been to the Kampot hospital? _____

52) Under what circumstances?_____

53) How many times a year do you go?_____

54) Have you ever been to the hospital in Kampong Trach?

55)Under what circumstances?_____

56) How many times a year do you go?_____

	Health Center	Pharmacy	Private Doctor / House	Kampot Referral Hospital	Kep Referral Hospital	Traditional Healer	Ask a village health volunteer	Ask a friend	TBA
56. If your child was suffering from severe diarrhea									
57. You are severing from a serious cold.									
58. The mother in your family is in a birthing emergency									

Where would you go to get help for the following conditions? **How would you get there? How long would it take?**

J. DEVELOPMENT

What would help your village the most? (please circle two)

a. A free phone system to the health center and Referral hospital

b. A new well where I could get fresh water.

c. Toilets and a better sewage disposal system in my village.

d. A new village program where people helped each other get to the hospital during medical emergencies.

e. A new dirt road that came close by my house.

Appendix C: Focus Groups Questionnaire

Hi, my name is Ben Bowles and I am from the Center for International Health, at the University of Toronto, in Canada. Today I would like to ask you some questions about people in your village, and how people in your village get help when they are sick. We would also like your assistance in discussing the barriers that limit people from getting better and getting medical help when they need it. Further, it is our hope to understand that this discussion can provide insight into how villagers perceive the health centers, and how the health centers can be improved. Questions should be answered in regard to only the people in the area of Kep District that you service. Everyones opinion is equally important to our discussion.

1) What three things come to mind regarding the following institutions?
   A) Health Center
   B) Pharmacy
   C) Private Doctor
   D) Kep Hospital
   E) Traditional Healer

(the group is instructed that they take 5 minutes to write or to think about this question on their own and not to do it as a group. After people have finished, we discuss everyones individual responses and develop a discussion. If sporadic discussion among the group members is low, the following issues are brought up by the moderator if the conversation)

- Do people in the village trust the _____?
- How is the service at the _____?
- Is the treatment from the _____ effective?
- What are the prices like at the _____?
- Is the cost a problem for getting to the _____?
- Do the worker (s) at the _____ have good training?
- If the treatment at the _____ doesn't work, where would the villagers go?
- Do you have any more ideas about the _____?
- ***For the health center only:*** *how can the health center services be improved?*

2) Comparison and Decision Making

i. Do you have any ideas about how the above institutions compare with each other?
ii. When people are not sure where to go, how do they decide?

3) **Transportation and distance**

5) Is transportation a barrier to getting better when people are sick?
6) What do people do to solve their transportation problems?
7) Is transportation a bigger problem in some areas than other areas?
8) Is transportation a bigger problem for getting to some places rather than others?
9) Do you have any ideas about a village program for transportation?

Appendices D: Number of surveys per village, per place code

Village	# of surveys / village	# of surveys per place code	
		Place code #	# surveys
Okrasa	15	30	4
		31	2
		32	2
		34	2
		35	2
		48	3
Kep	15	25	2
		26	3
		27	1
		40	1
		41	7
		42	1
Toul Saigam	21	47	9
		38	12
Prey Takoy	19	38	8
		37	3
		36	2
		35	2
		39	4
Chom Kaboy	16	2	3
		3	2
		4	5
		11	2
		46	3
Angkoul	1	5	5
		6	5
		7	2
		21	6
Kampong Troi Lach	14	9	2
		10	2
		22	5
		23	1
		24	1
		43	1
		44	1
		45	1
Koe Kro Sang	16	12	7
		13	4
		14	5
Koh Soam	17	15	6
		16	4
		28	5
		29	2
Total	172	43 different place codes	Ave #: 3.49 STD: 2.46

Appendix E: Supplementary Information

1) Vocations of villagers interviewed.

Doesn't work	6
Cleaner	1
Employee in crab company	1
Farmer	130
Farmer and Fisher	1
Fisher	3
House builder	1
Military	2
Police	1
Seller in the market	23
Teacher	1
Wineseller	2
Wood seller	1

2) Abbreviations used in the current study

HC	Health center	MoH	Ministry of Health
PH	Pharmacy	RCV	Red Cross Volunteers
PD	Private doctor	PHC	Primary Health Care
KH	Kep hospital		
TH	Traditional healer		
KaH	Kampot hospital		

3) Close and Far surveys

CLOSE	FAR
30 31 32 33 34	38 37 36 39 2 4
48 47 7 21 17	11 3 46 5 6 9 10
18 19 22 23 24	44 43 15 16
45 28 29	

# of far surveys	# of close surveys
82	58

Appendix F: Where people go for what types of conditions

type of condition	*HC*	*PH*	*PD*	*KH*	*TH*	*KaH*
Abdominal Pain	5	10	9	3	5	1
Arthritis	3	13	5	0	1	2
Broken bones	0	0	0	3	3	0
Birth Spacing	0	0	0	1	0	1
Blurred vision	0	2	0	1	0	1
Chestache	0	0	1	0	0	0
Chills	1	5	5	0	0	0
Chronic diseases	0	0	0	1	0	0
Cold	4	9	0	7	0	0
Cough	21	42	3	19	0	2
Dengue	1	3	9	4	0	5
Diarrhea	3	9	9	3	0	0
Dizziness	5	10	10	0	0	2
Dysuria	0	1	0	3	0	0
Fatigue	2	4	21	4	1	0
Fever	34	90	13	1	0	0
Flatulence	0	1	2	0	3	0
Flu	5	14	0	0	0	0
HC can't adequately treat	0	0	0	2	0	0
Headache	13	41	5	6	0	0
Heartburn	2	6	5	0	1	0
Hemmaroids	0	0	0	3	0	0
High blood pressure	0	1	3	0	1	0
Joint pain	2	3	1	4	0	0
Lung problems	0	0	0	4	0	1
Malaria	0	1	7	1	0	5
Muscle pain	2	4	1	0	1	0
Night blindness	0	0	2	1	0	0
PD can't adequately treat	0	1	0	0	0	0
PH can't adequately treat	0	0	0	0	0	0
Poor appendix	0	1	5	1	1	0
Rash	0	0	0	0	1	0
Runny nose	1	1	0	0	0	0
Sinitis	0	1	0	0	0	0
Slight cough	0	2	2	0	0	0
Slight fever	0	1	1	0	0	0
Snake bites	0	0	0	16	2	1
Serious problems	0	2	39	1	0	10
Stomache ache	2	6	1	2	0	0
Strong cough	0	0	3	0	0	0
Severe diarrhoea	0	0	3	3	0	1
Strong fever	1	4	21	2	0	0
Swollen body	0	1	1	2	0	1
Fatigue	1	0	2	31	0	1
Typhoid	5	4	16	2	1	6
Vomiting	0	2	0	0	0	0
Weak heart	0	1	0	0	0	0
Constipation	0	0	0	0	0	0
Hepatitis	0	1	0	1	0	0
Genital problems	0	2	1	0	2	1
Numbness	0	2	0	0	0	0
Heart problems	0	1	1	1	0	1
Surgery	0	0	0	0	0	6
Bronchitis	0	0	0	0	0	0
Neurosis	2	0	2	0	1	0
Strong cough	0	0	0	0	0	0
TH can't adequately treat	0	0	1	4	0	0
Tuberculosis	4	0	1	3	0	0

Private doctor can't adequately treat	0	0	0	0	0	0
Matritis	0	0	1	0	0	0
Watery eyes	0	1	0	1	0	0
Ultrasound	0	0	0	1	0	1
Checkup	0	0	0	0	0	1
Throat problems	0	2	0	0	1	0
Insomnia	0	0	3	0	0	0
Cancer	0	0	0	2	0	0
Pneumonia	2	1	0	0	0	0
Blood test	0	0	0	0	0	1
Unable to walk	0	1	1	0	0	0
Vaccinations	2	0	0	0	0	0
Lumbago	2	0	0	0	0	0
Breathing difficulties	0	0	0	0	1	0
Simple conditions	0	0	0	0	0	0
Spiritual rejuvenation	0	0	0	0	3	0
Pain around the waste	0	1	0	2	0	0
XRAY	0	0	0	0	0	0
Meningitis	0	1	0	0	0	1
Gastritis	1	0	0	0	0	0
Painful cervix	2	0	0	0	0	0
Itches	0	0	0	0	0	0
Miscarriage	0	0	0	1	0	1
Rinitis	0	1	0	0	0	1
Diabetes	0	1	1	0	0	1
Worms	1	0	0	0	0	0
KH can't provide adequate treatment	0	0	0	0	0	5
Blood transfusion	0	0	0	0	0	1
Hemmorage	0	0	1	0	0	6

Appendix G: Overview of details for pharmacies and private doctors in Kep, Cambodia.

Name	Map #	PH or PD?	Villages serviced in Kep	Other Position	Training
Mr Mey Thorn	1	Both	?		-1967-1970 studied at Ang Dourng Hospital In PP, General diseases -1970-1975 work at Kep Municiple, Kep Hospital , Medic -1979-2001 studied six kinds of diseases(Work shop, TB,Tetanus,whooping cough -2000-2001 workshop at Okrasa HC -Private practitioner and pharmacy
Eng Setha	2	P	-Dom nak chang ah -Phnom Leav	-Nurse	-1987-1988 Nurse training Program in Takeo
Mok Ngoeun	3	Both	-Okrosa -Damnak cham bok village	-Vaccinator at HC	-1990-1995 General Diseases at Cambodia+Thiland's border (hospital)
Own Pov	4	Both	-Phnom leav -Rones , -Odoung -Toul Sangam -Prey Takoy -Chom Kaboy	-HC, Consoltation	*-Trained as "medic assistant" for five years, through NGO-sponsored program, 1992; certified; subsequent experience in Phnom Penh hospitals for 4 years.* -1979-2001 General Diseases, Phnom Penh
Lim Aung	5	Both	Chom Kaboy	-Pong Tuk HC director	-1975-1977 General diseases and surgery at Phnom Penh
Nop Nem	6	P	-Odoung -Ko Soam -Toul Sangam - Roneas		-1987-1990 studied in Kampot, General Diseases
In Song	7	P	-Chom Kaboy	-HC Nurse	-1980-1981 General diseases, Takeo hospital
Soeurn yav		Both	-Kep -Koe Krasang -Thmey		-1997-2000 studied at Kom Pot Hospital
Prom Samay	9	Both	-Aeopeng -Koh Soum -Toul Sangam -Angkoul	-Angkoul HC nurse	-1985-1990 Medical Assistant, studied in Hospital at Cambodia+ Thiland Border
Khat Moung	10	Both	-Dam nak chom pok, -Okrasa		-1988-1989 General diseases, Surgery at Hospital Cambodia + Thiland Border.
Heang Socheat	11	PD	?		*--Primary nurse, trained in Kampot 1986-87; certified; responsible for stores/supplies, birth spacing/family planning services and outreach activities* -1994-2000 studied General surgery in PP
ey Sengchhe	12	Both		-Police commissioner	-1991-1994 studied General diseases at Kom Pot hospital .
Kov Chun	13	Both	-Koe Kro Sang -Kep Village	-Angkoul HC nurse	-1979-1983 Commune Health Center worker, -1983-1984 Hospital worker -1984-1987 studied General diseases at Medical school in PP. -1987-1988 worked at Kom Pot district Health Office -1988-1989 worked at Kep Hospital , second nurse on Malaria and ------ Administrative.
Chiv Chandina	14	?	?	-Vise Director at Kep Hospital --Responsible for operation of TB ward and monitoring of TB cases; as with all physicians, also provides coverage for out-patient department	-1982-1989 studied at Faculty of Medicine in PP.
Sorn Bek	15	P		-Angkoul Health Center Director. -Secondary Nurse	*-Secondary nurse, certified; completed schooling 1967; subsequent hospital experience.* -1966-1969 General diseases in PP
Aum Kev	16	Both	-Angkoul -Toul Sangam -Aeopeng	-Nurse at Angkoul HC	-1997-2001 studied at Kom Pot Medical school
Eung Navuth	17	Both	-Koe Kro sang Village	-Vise Director of Health -Promotion for operational district health office	-1990-1993 studied General Diseases in PP
Sang Kim	18	PD	-Aeopeng -Angkoul	-Operational health district office reporter to Ministry of Health	-Received training General diseases in Kom Pot Hospital

Note: the above chart is a culmination of both data collected in the present study, and data from a previous study. In particular, text entered in italics signifies data collected by Skalenda (2004)[1]

[1]Skalenda, P., *Knowledge, Attitudes, and Practices Survey of Health Care Services*, Centre for International Health, University of Toronto, 2004 (unpublished)

Appendix H: Locations of private practitioners from Appendix G.